

The New York Times

Scientists Detect Elusive Building Block of Matter

By JAMES GLANZ
Published: July 21, 2000

What many physicists consider to be one of the last pieces of the theoretical puzzle that explains the structure of matter has been detected at the Fermi National Accelerator Laboratory near Chicago.

An international team of scientists will announce today that they have detected the tau neutrino, considered to be the most elusive member of nature's most ghostly family of particles, the neutrinos.

The team of 54 physicists from institutions in the United States, Japan, South Korea and Greece used the world's most powerful particle accelerator, Fermilab's Tevatron, to fire an estimated 100 trillion tau neutrinos into an advanced emulsion similar to photographic film.

Four of those neutrinos produced minute but clearly recognizable streaks in the emulsion.

Although their existence had been suspected for 25 years, tau neutrinos had escaped detection because it takes a large amount of energy to create them and because neutrinos pass through most matter almost without a trace.

"It's just been accepted that this guy exists," said Dr. Regina Rameika, a physicist at Fermilab and a member of the team. But, Dr. Rameika added, "the neutrinos are just too strange to take for granted."